

**Appendix B**  
**Vendor Product Specification Sheet**



## Appendix B

### Vendor Product Specification Sheet



## Ultem® PolyEtherImide Specifications

Rt. 2 • Box 5 • 904 West 6th St., Shiner, Texas 77984  
Phone: 1-361-594-2941 Fax: 1-361-594-2349 E-Mail: [bpi@boedeker.com](mailto:bpi@boedeker.com)

**1-800-444-3485**

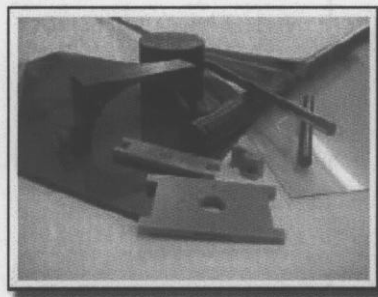
[BPI Home Page](#) | [Applications](#) | [Materials Guide](#) | [Contact Us!](#)

---

### GENERAL PROPERTIES

Ultem® PolyEtherImide (PEI) is an amber transparent high performance polymer which combines high strength and rigidity at elevated temperatures with long term heat resistance. Ultem® offers excellent dimensional stability combined with broad chemical resistance.

Ultem® is also inherently flame resistant and low smoke generating. It excels in medical reusable applications requiring repeated sterilization and is available in FDA compliant colors.



### ULTEM® GRADES

#### Ultem® 1000 - unfilled

Unfilled Ultem® excels in hot air and water environments. It's hydrolytically stable -- it retains 85% of tensile strength after 10,000 hour boiling water immersion and 100% of tensile strength after 2,000 steam autoclave cycles at 270°F. It is also UV and gamma radiation resistant.

#### Ultem® 2100 - 10% glass filled, Ultem® 2200 - 20% glass filled,

#### Ultem® 2300 - 30% glass filled

Glass reinforced Ultem® provides even greater rigidity and dimensional stability while maintaining many of the useful characteristics of basic Ultem®. The glass reinforcement yields a product with an exceptional strength-to-weight ratio and increased tensile strength.

( see also [Semitron ESd 410](#) or or [Tempalux CN](#) Static-Dissipative Ultem Specifications)

TYPICAL PROPERTIES of ULTEM®			
ASTM or UL test	Property	Ultem® 1000 unfilled	Ultem® 2300 30% glass
<b>PHYSICAL</b>			
D792	Density (lb/in <sup>3</sup> ) (g/cm <sup>3</sup> )	0.046 1.28	0.055 1.51
D570	Water Absorption, 24 hrs (%)	0.25	0.18
<b>MECHANICAL</b>			
D638	Tensile Strength (psi)	16,500	17,000
D638	Tensile Modulus (psi)	475,000	800,000
D638	Tensile Elongation at Break (%)	80	3.0
D790	Flexural Strength (psi)	20,000	30,000
D790	Flexural Modulus (psi)	500,000	900,000
D695	Compressive Strength (psi)	22,000	32,000
D695	Compressive Modulus (psi)	480,000	620,000
D785	Hardness, Rockwell	M112 / R125	M114 / R127
D256	IZOD Notched Impact (ft-lb/in)	0.5	1.0
<b>THERMAL</b>			
D696	Coefficient of Linear Thermal Expansion (x 10 <sup>-4</sup> in./in./°F)	3.1	1.1
D648	Heat Deflection Temp (°F / °C) at 264 psi	392 / 200	410 / 210
D3418	Glass Transition Temp (°F / °C)	419 / 215	419 / 215
-	Max Operating Temp (°F / °C)	340 / 171	340 / 171
C177	Thermal Conductivity (BTU-in/ft <sup>2</sup> -hr-°F) (x 10 <sup>-4</sup> cal/cm-sec-°C)	0.90 3.10	0.90 3.10
UL94	Flammability Rating	V-O	V-O
<b>ELECTRICAL</b>			
D149	Dielectric Strength (V/mil) short time, 1/8" thick	830	770
D150	Dielectric Constant at 1 MHz	3.15	3.70
D150	Dissipation Factor at 1 MHz	0.0013	0.0015
D257	Volume Resistivity (ohm-cm) at 50% RH	6.7 x 10 <sup>17</sup>	3.0 x 10 <sup>16</sup>

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.

All values at 73°F (23°C) unless otherwise noted.

ULTEM is a registered trademark of General Electric Company

**Boedeker Plastics, Inc.**  
 Rt. 2 • Box 5 • 904 West 6th St., Shiner, Texas 77984  
**TOLLFREE : 1-800-444-3485**  
 Phone: 1-361-594-2941 Fax: 1-361-594-2349 E-Mail: [bpi@boedeker.com](mailto:bpi@boedeker.com)

● © Copyright Boedeker Plastics, Inc. 2001 ●

Source: [http://www.boedeker.com/ultem\\_p.htm](http://www.boedeker.com/ultem_p.htm).

**Appendix C**  
**Soil Moisture Probe Cabling Diagram**

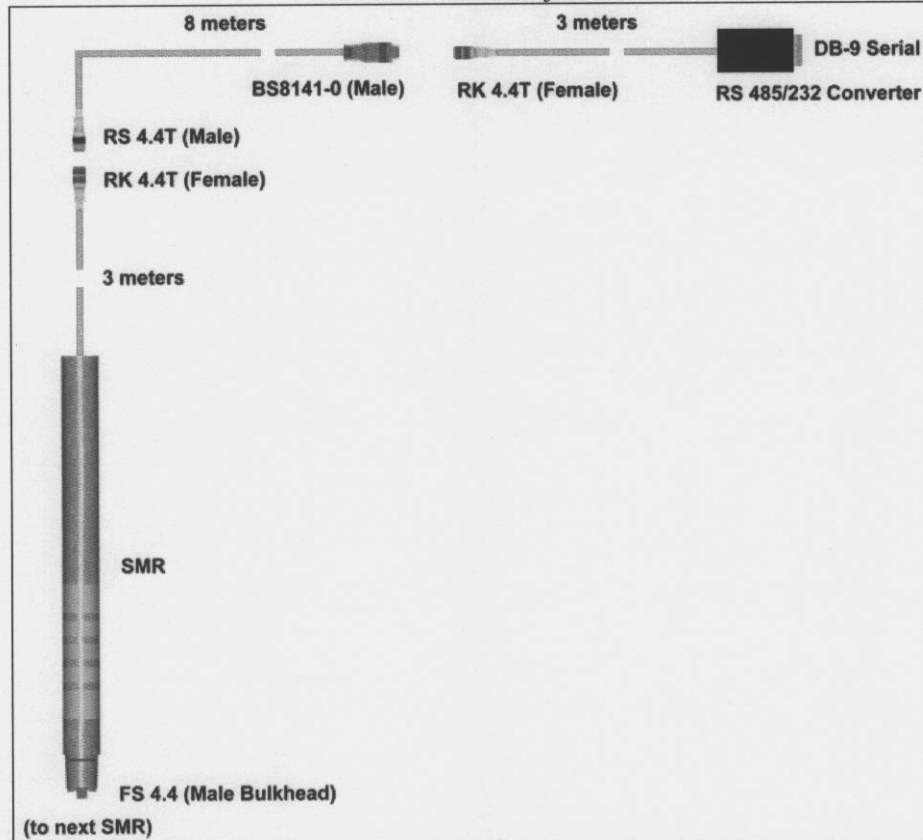


# Appendix C

## Soil Moisture Probe Cabling Diagram

Connector Manufacturer: Turck

Product Line: *eurofast®*



### Details

Figure	Part #	Gender	Rating	Conductors	Color	Applications	Pinout
	RK 4.4T	Female	250 VAC 300 VDC, 4.0 A	4/22 AWG, Grey Pur, 80 C, 5.2 mm OD	1. Bn 2. Wh 3. Bu 4. Bk	4-wire DC applications	
	RS 4.4T	Male	250 VAC 300 VDC, 4.0 A	4/22 AWG, Grey Pur, 80 C, 5.2 mm OD	1. Bn 2. Wh 3. Bu 4. Bk	4-wire DC applications	
	FS 4.4	Male Bulkhead	250 VAC 300 VDC, 4.0 A	4/18 AWG, Grey leads	1. Gy2 2. Gy2 3. Gy3 4. Gy4	Mates with 4- pin cordsets	
	BS8141-0	Male	125 VAC 150 VDC, 3.0 A	PG 7 cable gland, accepts 4-6 mm cable, Screw terminals		Mates with standard key 4-pin cordsets & receptacles	

